

### **REMARKS/ARGUMENTS**

In view of the following remarks, reexamination and reconsideration of this application, withdrawal of the rejections, and formal notification of the allowability of all claims as presented are earnestly solicited. As detailed in the Office Action mailed March 17, 2008, Claims 1-21 are pending, wherein Claims 1-21 have been rejected. In response to the Office Action, the Applicant traverses the rejections as detailed herein, but has amended Claim 17 to clarify the subject matter being claimed. In so amending Claim 17, no new matter has been added. Accordingly, it is believed that the claims define patentable subject matter over the prior art cited by the Examiner and notice to such effect is requested at the Examiner's earliest convenience.

#### **Claim Objections**

The dependent claims were objected to in the Office Action for reciting "A" instead of "The". In response, the Applicant traverses these objections. More particularly, the Applicant is not aware of any requirement set forth in the MPEP that requires dependent claims to be termed in the manner referred to in the Office Action. Should a specific MPEP requirement be identified in this regard, the Applicant will appropriately address these objections. Otherwise, the Applicant respectfully requests withdrawal of these objections.

#### **Claim Rejections – 35 U.S.C. §102**

Claims 17, 18, and 21 were rejected in the Office Action as being anticipated by U.S. Patent No. 4,410,424 to Chupka et al. In response, the Applicant traverses these rejections.

More particularly, the Applicant traverses the allegation in the Office Action that the term "shrink fit" recites a method step for making the screen rather than the actual screen device. That is, Claim 17 recites **a structural shrink fit relationship** between the end ring and the at least one of the support rods closest to one of the ends of the screen surface. This recitation of a shrink fit relationship in Claim 17, now pending, is no more a method step than the recitation in Claim 1 of Chupka that specifically states "a plurality of metal bars of rectangular section extending generally lengthwise of said cylinder in uniformly circumferentially spaced relation

around the interior of said cylinder and **welded** to each of said rings to maintain said rings in said axially spaced relation thereof.” As such, the Applicant submits that Claim 17 recites **a structural relationship** directed to the securement of the screen cylinder surface to the end ring via the at least one of the support rods, and **does not** represent a mixing of statutory classes or a product-by-process limitation, as alleged in the Office Action.

In any event, even though the Applicants traverse these rejections, the Applicant has amended Claim 17 to more particularly recite **“an end ring configured to be shrink fit mounted to the at least one of the support rods** closest to one of the ends of the screen surface, **the shrink fit end ring thereby being configured to exert a force** directed substantially perpendicularly to the screen cylinder axis, **the force acting between the end ring and the at least one of the support rods, to secure the screen cylinder surface in substantially immobile relation relative to the end ring via the at least one of the support rods.** Amended Claim 17 thus more particularly recites **a structural securement relationship of the end ring**, analogous to Chupka’s particular recitation of a welded securement between the metal bars and the rings as a positive element of the claimed apparatus, and **does not** seek to claim a method or a product-by-process.

Accordingly, as already detailed, the Chupka patent discloses a screening cylinder for use in screening apparatus for paper making stock, that includes a reinforcing skeleton structure comprising **multiple bars extending generally axially of the inside of the cylinder which are welded to relatively heavy reinforcing hoops located at both ends of the cylinder** and at a plurality of uniformly spaced locations along the length of the cylinder. Between each adjacent pair of these hoops is a plurality of circular rings of metal rod material arranged in closely spaced relation with each other and with the hoops to define a corresponding plurality of circumferentially extending screening slots.

The Applicant thus submits that Chupka discloses **a welded securement** (and **only a welded securement**) of the bars to the reinforcing hoops and **does not** anticipate, suggest, or provide motivation for a shrink fit securement between the end ring and the at least one of the support rods closest to one of the ends of the screen surface, as now particularly recites in Claim 17 of the present application. Such a shrink fit securement also would **not** have been predictable

from the disclosure of Chupka. Thus, in view of this difference between the Chupka patent and embodiments of the present invention as now claimed in Claim 17, the Applicant respectfully submits that Claim 17, as well as Claims 18 and 21 which depend therefrom, are **not anticipated** by the Chupka patent. As such, Claims 17, 18, and 21 are patentable over the Chupka patent, and the Applicant requests withdrawal of these rejections.

### **Claim Rejections – 35 U.S.C. §103**

Claims 1, 2, 5, 7-10, 13, 15, 16, 19, and 20 were rejected in the Office Action as being obvious over Chupka in view of U.S. Patent No. 6,056,126 to Schabel et al.; U.S. Patent No. 5,094,360 to Lange; and U.S. Patent No. 6,579,458 to Mickelat et al. In response, the Applicant traverses these rejections.

In this regard, each of Claims 1, 9, and 17 particularly recites a plurality of longitudinally-extending screen wires fastened at lateral intervals about a plurality of ring-shaped support rods spaced-apart along a screen cylinder axis, wherein the screen surface formed thereby has opposed ends, and at least one of the ring-shaped support rods is disposed about one of the ends of the screen surface. In such a configuration, an end ring is shrink fit mounted to the at least one of the ring-shaped support rods closest to the one of the ends of the screen surface. The force resulting from the shrink fit end ring is directed substantially perpendicularly to the screen cylinder axis, between the end ring and the longitudinally-extending screen wires, so as to compress the at least one of the ring-shaped support rods therebetween and thereby secure the screen cylinder surface in an operable configuration.

In contrast, the Chupka patent discloses a screening cylinder 20 including a plurality of groups 50 of circular rings 52 arranged in spaced relation axially of the cylinder to define a corresponding plurality of circumferentially extending screening slots or gaps 54 therebetween. A reinforcing hoop 55 is interposed in each of these gaps and forms a part of this cylinder wall. Multiple bars 56 extend generally axially of the interior of the cylinder and are **welded** to the bases of the rings 52 and the hoops 55 at all their crossing points. The top and bottom of the cylinder are finished by hoops 60. An additional reinforcing hoop 61 is **welded** to the bottom hoop 60 to reinforce the bottom of the cylinder. Similarly the top of the cylinder is finished by a

retaining ring 62. The individual groups 50 of rods 52 can be assembled and secured together by forming the complete cylinder initially in two flat sections, and using composite hoops 55, each comprising an inner section 65 of the same radial dimensions as the rod material 52 and the end hoops 60, and an outer section 66 of slightly smaller width to facilitate welding the two sections together along the seams 67. According to this procedure, each flat half-section will include the proper number of half-rods 52 and half-hoops 60 and 66, all welded in the desired spaced relation axially of the finished cylinder to the proper number of bars 56. The two half-sections are rolled and assembled around an expanding mandrel inside the complete circular outer hoop sections 65 and the end hoop 61 and each ring 62. The mandrel is then expanded to assure tight contact between each set of hoop sections 65-66 and between the end hoops 60 and the reinforcing hoop 61 and end ring 62 while these contacting parts are welded together. Thereafter, the adjacent ends of the two sections are welded together to complete the cylinder.

The Schabel patent discloses a screen or sieve device having parallel aligned rods 3 held by a multitude of supporting elements 1. The supporting elements 1 are connected to the carriers 5 on the side of the supporting elements 1 that is opposite the rods 3. The carriers 5, in turn, are connected to the cover elements 2. In the region of the face, the carrier is connected on both sides with the cover elements 2. The cover elements 2 may transmit an axial force to the rods 3 through the spring elements 7 that are respectively located at the face of the rods 3. In a different method of attachment, the cover element 2 is placed directly on the rods 3, and the screw connection between the cover element 2 and the carrier 5 is composed of a clamping connection with the slot. Where it is not required to dismantle the rods 3, both cover elements 2 can be more or less permanently connected with the carriers 5, so that they are undetachable, for example, by welding. The carriers 5 may alternately be placed radially towards the inside. In another variation, the rods 3 are pushed through the supporting elements 1 such that the rods 3 may be removed only in the longitudinal direction. It is possible to detachably connect at least one of the cover elements with the carriers to produce special screen (or sieve) baskets, because the rods can be inserted. The cover elements then prevent the rods from sliding in the axial direction. This enables slight prestressing of the rods in the supporting elements, to protect the rods against vibrations in the recesses. Such a prestressing of the rods in the supporting

elements may be performed by a thermal shrink fitting.

The Lange patent discloses screen baskets featuring axially parallel screen rods with screen slots contained in between and, for support of the screen rods, rings that are coaxial with the basket axis, the rings being provided with recesses that are open toward the rim. The screen rods may have feet that are placed and fastened in the recesses. The screen rods are placed in the recesses while the rings do not have their final rounded shape. The rings are rounded so as to close the circular shape and to clamp the screen rods in place in the recesses that are constricted by the rounding. More particularly, the clamping rings are substantially straight rods having the grooves formed therein. The screen rods are inserted into the grooves so that a screen mat is produced. The ends of the screen mat are then brought together, rounding the screen mat. The ends of the screen mat are then welded to one another. As a result, **the rods are formed into a ring, thereby forming a screening basket consisting of screening bars and clamping rings, forming a rigid screen structure. Centering rings may then be shrink-fitted to the end faces of the screen basket.** Lange does not indicate the particular element that comprises a “centering ring”. In this regard, FIG. 9 of Lange shows one possible configuration whereby the “centering ring” may somehow be related to the interaction between the ring section 1’ and the supporting rods 38 extending axially along the screen basket. However, even if that is the case (since nowhere does Lange disclose the ring section 1’ as being a “centering ring”), **Lange does particularly disclose that a rigid screen structure is formed, by welding, prior to any application of such a centering ring.**

To establish a *prima facie* case of obviousness, according to a test predominately used by the courts, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim elements. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

With regard to the Supreme Court's decision in *KSR Int'l. Co. v. Teleflex, Inc.*, 550 U.S. \_\_\_, 82 USPQ2d 1385 (2007), it is noted that the Court **did not** dismiss the usefulness the well-established "teaching, suggestion, or motivation" test set forth above, but merely cautioned against its rigid application. The Supreme Court in *KSR* commented that the Federal Circuit "no doubt has applied the test in accord with these principles [set forth in *KSR*] in many cases." *Id.* at \_\_\_, 82 USPQ2d at 1396. However, the Supreme Court also opined that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. . ." *Id.* at \_\_\_, 82 USPQ2d at 1395-96. Regardless of the precise test used, the Court, quoting *In re Kahn*, cautioned that "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.* at \_\_\_, 82 USPQ2d at 1396.

In this regard, Chupka explicitly disclosed a screening apparatus having two **flat half-sections each including the proper number of half-rods 52 and half-hoops 60 and 66, all welded** in the desired spaced relation axially of the finished cylinder to the proper number of bars 56, that are rolled and assembled around an expanding mandrel inside the complete circular outer hoop sections 65 and the end hoop 61 and each ring 62. **The mandrel is then expanded to assure tight contact** between each set of hoop sections 65-66 and between the end hoops 60 and the reinforcing hoop 61 and end ring 62 **while these contacting parts are welded together**. Thereafter, the adjacent ends of the two sections are **welded** together to complete the cylinder.

Schabel explicitly discloses particular configurations of a screening apparatus where cover elements 2 are engaged between the rods 3, forming the screening element itself, and axially extending carriers 5 disposed either inside or outside of the rods 3, wherein **the rods 3 may be thermally shrink-fitted with the supporting elements 1**. Similarly, Lange explicitly discloses clamping rings 1' that are substantially straight rods having the grooves formed therein, wherein screen rods 3 are inserted into the grooves so that a screen mat is produced. The ends of the screen mat are then brought together, rounding the screen mat. **The ends of the screen mat are then welded to one another**. As a result, **the rods are formed into a ring, thereby forming a screening basket consisting of screening bars and clamping rings, forming a**

**rigid screen structure.**

As such, the Applicant submits that Chupka particularly and specifically extols the virtues and advantages of the welded construction of the screening apparatus, reciting that “the relatively heavy hoops 55 welded to the multiple axial bars 56 tend to rigidify the cylinder structure as a whole, and thereby to minimize the transmission of vibratory stresses to **the welded connections** between the bars 56 and the rings 52 . . . which have been found to result in screening cylinders of **highly superior characteristics**.” Indeed, the Chupka patent particularly discloses that an expanding mandrel must be used to **expand the hoop sections 65-66 such that those components can be welded** to the end hoops 60 and the reinforcing hoop 61 and end ring 62, which effectively **teaches away** from any notion of the use of a shrink fit securement of the hoops/rings 60-62. By advocating the “highly superior” virtues of the welded construction, as well as teaching away from any shrink-fit securement, Chupka effectively renders any other configuration or variations of a screening apparatus unnecessary and therefore not predictable, regardless of the disclosures of Schabel and/or Lange. Thus, Chupka, either separately or in combination with Schabel and/or Lange, **does not** teach, suggest, provide motivation for, or otherwise render predictable the methods of Claims 1 and 9, or the apparatus of Claim 17, now pending.

Further, the Applicant submits that Schabel discloses particular configurations of a screening apparatus whereby cover elements 2 are engaged between the rods 3 forming the screening element itself, and axially extending carriers 5 disposed either inside or outside of the rods 3, wherein **the rods 3 may be thermally shrink-fitted with the supporting elements 1**. Thus, Schabel is directed to particular configurations of a screening apparatus to which a shrink-fit procedure can be applied, namely with the supporting elements 1 and cover elements 2 in direct engagement with the screening element (rods 3) and supported by the axially-extending carriers 5. The Applicant also submits that Lange, likewise, discloses **the ends of the screen mat receiving the rods are first formed into a ring and then welded to one another, thereby forming a screening basket consisting of screening bars and clamping rings, in a rigid screen structure**. Only then may **undesigned “centering rings” be shrink-fitted to the end faces of the screen basket**. As such, Lange is also directed to particular configurations of a

screening apparatus to which a shrink-fit procedure can be applied, namely with an undesignated “centering ring” applied to **an already-formed (by welding) rigid screen structure**. As such, the undesignated “centering ring” does not ostensibly contribute to the securement of the screening element since, according to Lange, *a “rigid screen structure” has already been formed prior to the application of the centering ring.*

In this regard, the Applicant submits that Schabel or Lange, either separately or in combination with Chupka (which issued significantly prior to either Schabel or Lange), **do not** teaches, suggest, or provide motivation for, or otherwise render predictable a particular configuration of a screening apparatus whereby an end ring is shrink fit mounted to the at least one of the ring-shaped support rods closest to the one of the ends of the screen surface, such that the force resulting from the shrink fit end ring is directed substantially perpendicularly to the screen cylinder axis, between the end ring and the longitudinally-extending screen wires, so as to compress the at least one of the ring-shaped support rods therebetween and thereby secure the screen cylinder surface in an operable configuration, as particularly recited in Claims 1, 9, and 17, now pending. Further, the Mickelat patent, also cited in the Office Action, **does not** provide or otherwise render predictable the noted deficiencies of the Chupka, Schabel, and Lange patents.

One possible advantage of the particular methods and apparatuses claimed in Claims 1, 9, and 17 of the present application is that the shrink fit relationship of the end ring with the ring-shaped support rod may provide a more uniform application of the compressive securing force to the longitudinally-extending screen wires, as compared to a direct engagement between circumferential rings and the screen element (Schabel and Lange), or through a welded securement (Chupka). Paragraph [0005] of the present application also notes that fastening the end rings to the screen cylinder by welding undesirably causes welding stresses in the resulting structure of the screen cylinder. As such, during use of such a screen cylinder, such welding stresses may not be able to withstand the combination of operational loads resulting from varying pressure inside the screen cylinder and other mechanical loads on the screen cylinder, thereby resulting in a higher risk of failure. As such, paragraph [0011] of the present application discloses that the shrink fit relationship applied to the particular screen cylinder configurations of

the present invention desirably and advantageously avoid such weld joints and the weld stresses resulting from such joints. Further, a more time-, labor-, and cost-efficient process and apparatus may result since any welding process for the securing the end ring to the screen wires is eliminated. Furthermore, the shrink fit end ring (not welded) may be re-used when replacing the screen cylinder.

Thus, in view of the distinctions noted herein, as well as the accompanying advantages of the particularly claimed methods and apparatuses, the Applicant submits that Chupka, Schabel, and Lange, either separately or in combination, **do not** teach, suggest, or provide motivation for Claims 1, 9, and 17, now pending, and that one of ordinary skill in the art **would not** have recognized from the disclosure of the cited art that Claims 1, 9, and 17 were predictable. As such, the Applicant submits that Claims 1, 9, and 17, as well as Claims 2, 5, 7, 8, 10, 13, 15, 16, 19, and 20 which depend respectively therefrom, are allowable over the Chupka, Schabel, Lange, and Mickelat patents cited in the Office Action and, as such, are believed to be in condition for immediate allowance.

Claims 3, 4, 6, 11, 12, and 14 were also rejected in the Office Action as being obvious over the Chupka, Schabel, Lange, and Mickelat patents, in view of U.S. Patent No. 5,200,072 to Frejborg et al. In response, and as previously discussed, Claim 1, upon which Claims 3, 4, and 6 depend; and Claim 9, upon which Claims 11, 12, and 14 depend, are **not obviated** by the Chupka, Schabel, Lange, and Mickelat patents, either separately or in combination. Moreover, the Frejborg patent **does not** provide or otherwise render predictable the noted deficiencies of the Chupka, Schabel, Lange, and Mickelat patents. As such, Claims 3, 4, 6, 11, 12, and 14 also **are patentable** over the Chupka, Schabel, Lange, Mickelat, and Frejborg patents. The Applicant thus requests withdrawal of these rejections.

### **Conclusion**

In summary, the Chupka, Schabel, Lange, Mickelat, and Frejborg patents, either separately or in combination, **do not** teach, suggest, provide motivation for, or otherwise render predictable the embodiments of the present invention, as now claimed in Claims 1-21. Accordingly, in view of these differences between the embodiments of the Applicant's invention

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and the Chupka, Schabel, Lange, Mickelat, and Frejborg patents, it is submitted that the present invention, as defined by the pending claims, is patentable over the prior art cited by the Examiner. As such, Claims 1-21 are believed to be in condition for immediate allowance.

In conclusion, for the reasons set forth above, the Applicant submits that all claims now pending are in condition for immediate allowance. Accordingly, notice to such effect is respectfully requested at the Examiner's earliest opportunity.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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